

MEETING SUMMARY
Repository Sump Water Meeting
New World Mining District Response And Restoration Project
First Security Bank Building, Bozeman, Montana
June 4, 2002

The USDA Forest Service hosted this meeting to discuss the results of sump monitoring at the SB-4B(B) repository site and events that led up to the snowmaking operation completed in April. Attendees at the meeting included the following:

- Mary Beth Marks (MB) – On-Scene Coordinator
- Frank Ehernberger (FE) – Project Engineer
- Bob Kirkpatrick (BK) – USDA Representative
- John Koerth (JK) – MDEQ Project Coordinator
- Mary Hektner (MH) – Dept. of Interior Project Coordinator
- Jim Barrett (JB) – Park County Environmental Council
- Mike Whittington (MW) – Beartooth Alliance
- Don Bachman (DB) – Greater Yellowstone Coalition
- Paula Clawson – Livingston Enterprise
- Scott McMillion – Bozeman Chronicle
- Michael Cormier (MC) – Maxim Technologies

Frank Ehernberger (FE) opened the meeting with an explanation of the repository design and the construction of the repository sump. This was followed by a slide presentation of repository construction elements that were completed in 2001. Key to the slide presentation was the timing of the construction of the temporary and permanent liners that were installed in the repository cover. Due to the onset of snow and winter conditions during liner installation in October, temporary measures were taken to winterize the cover, as portions of the cover could not be completed before winter shutdown. These measures included sandbagging instead of welding portions of the temporary cover, and construction of earthen berms along the liner margins to take the place of welding and permanent soil cover. Welding the permanent bottom liner and the permanent top liner together along the east and south edges of the repository was not completed and may be a factor allowing runoff water to enter the repository sump.

Questions:

Don Bachman (DB) asked how long the lateral perforated pipe was in the sump. FE answered 15 meters.

Mary Hektner (MH) asked how much extra capacity was gained in the repository due to construction changes that were made to the repository. FE did not know the exact volume of capacity gained because he has not received as-built drawings from the contractor, but made an educated guess that about 20% more volume could be added to the total capacity of the repository.

DB asked what pathways the water that is leaking into the sump is taking, and if any is percolating through waste. FE answered that the first 11,000 gallons of water that was removed from the sump and made into snow in April was snow and residual water that had percolated through the waste. While we don't know the exact pathway that water is moving into the sump, it is likely that water that is currently in the sump leaked in through the margins of the liner in a couple of places where ponding of runoff was noted on the liner, and that this water is not running through the waste.

DB asked what the relationship of the sump was to the tank shown in the EE/CA. Bob Kirkpatrick (BK) explained that at other sites where the USDA Forest Service has been involved with construction of leachate collection systems (LCS) in lined mine waste repositories, the first year after construction a considerable volume of water is collected in the LCS as a result of the drain-down of residual water present in the placed waste. Temporary liners used during construction considerably reduced the volume of water produced. After equilibrium is reached in the capped wastes, leachate production is substantially reduced. DB followed up this question with a statement that the 11,000 gallons was anticipated, then, as part of design. Michael Cormier (MC) answered that the sump was designed to collect leachate within the bottom liner, and replaced the tank shown in the EE/CA. Also, while the 11,000 gallons was not necessarily anticipated, the sump was designed to have excess capacity as part of a built-in safety factor.

Mike Whittington (MW) asked if there would be a work order developed with specifications on the work needed to fix and complete the repository. BK answered that the current design documents are the specifications for the completion of the repository, and that no matter which company finishes the repository construction in 2002, they will have to complete the repository according to the design contract. MW followed up this question with whether IT Corp. was going to prepare a technical memorandum on the repository work that needs to be completed. BK said that the Forest Service Contracting Officer would send a memo to the Shaw Group (purchaser of IT Corp.) on what construction items do not meet specifications. MW requested a memo on the remaining work that needs to be done and that the Beartooth Alliance be kept informed on what will be done and when. FE asked the detail that would be needed. MW said it depends on what the Forest Service needs from the contractor. FE emphasized that the Forest Service knows what portions of the repository work meet specifications and what don't, and the contractor has to provide the Forest Service with pertinent information until the Forest Service is satisfied that the conditions of the contract are met. MW said he didn't want to belabor the point, and assumes that when the Forest Service determines the deficiencies of the repository construction, they will let the Beartooth Alliance know what those deficiencies are.

DB asked about the chronology of construction. The contract said project start should have been 10 days following award, with a contract time of 105 days. FE answered that there were some changes during construction, such as an increase in the quantity of mine waste disposed, allowing an extension of the contract period. With these changes, the contract period was extended to October 7. By not completing by this date, the contractor was out of compliance with the contract.

Jim Barrett (JB) asked if the bond was sufficient to cover the remaining work to be done. MB answered that the contractor was responsible for all costs associated with monitoring of the repository over the winter and with snowmaking costs, and that the bonds were sufficient to cover the remaining work if the contractor defaults on the contract. FE said the Forest Service is in good position financially on the remaining work to be done.

John Koerth asked if the Forest Service has thought about how to figure out where the problems are with leakage into the repository sump. BK answered that the bottom liner is in good shape, as shown by the containment of the first 11,000 gallons of water that was held in the sump over the winter, and that water quality results show that the problem is with the top liner.

Mary Hektner (MH) asked when the final cap would be constructed, and whether finish-up work on the repository would be completed this year. BK answered that the finish-up work would be done this year for the final cover on the slopes and that the temporary portions of the cap would likely be opened up next

year. After the last cell of waste is placed, the final cover will be completed over the entire repository. FE followed up the question by saying that the finish-up work should be completed by August 15 of this year.

End of Questions

Mary Beth Marks (MB) gave a brief slide presentation showing the snowmaking operation that was conducted in April. Michael Cormier (MC) summarized the data collected during the winter and spring before and after snowmaking. Key items brought up during this discussion were the following:

- The repository sump filled with runoff from snow that was lying on the repository cap between April 23, when the repository sump was emptied, and May 15. Based on weekly measurements taken at the repository, the in-fill rate to the sump from runoff was approximately 1.2 gallons per minute, or about 1,730 gallons per day. After May 15, the repository was at full pool and contained approximately 28,000 gallons. Since runoff was continuing to deliver snowmelt from the capped surface, this same amount (1.2 gallons per minute) may be leaking directly from the sump into the rock toe at the base of the repository.
- Water quality data from two surface water stations that are being monitored weekly below the repository indicated that on May 15, flow in the stream below the repository increased more than seven times base flow conditions measured in April. With this considerable increase in flow, turbidity increased substantially, and so did total recoverable iron and manganese concentrations at both stations. By May 30, flows were 10 times higher than the May 15 flow, but turbidity (i.e. suspended sediment) had decreased, along with a coincident decrease in both total recoverable iron and manganese concentrations. Samples collected for dissolved analyses from these two stations on May 30 showed that all metals concentrations were below detection limits at both stations except for copper, which was measured at 0.002 milligrams per liter, well below WQB-7 standards for chronic aquatic life (0.012 milligrams per liter).
- Only total recoverable iron exceeded a WQB-7 standard on May 30. Water quality data showed that there is no threat to human health or the environment from either the water from the sump discharged as snow in April, or for any discharge from the sump that may have occurred after May 15.
- With the majority of runoff from the area immediately surrounding the repository declining after the end of May, conditions at the repository are stable, and only precipitation that falls directly on the repository could affect the level of water in the sump.

Questions

Mike Whittington (MW) asked why the snow was yellow from the snowmaking operation. MC answered that it was typical of snowmaking operations to make yellow snow and may be due to how the ice crystals form. DB disputed that remark and said, from his experience with snowmaking, it was probably a result of a dirty compressor, and that the yellow color was from suspended solids. He didn't think it was a result of the water from the sump.

End of questions

Mary Beth Marks (MB) summarized options for disposing of sump water. The options include: one-time treatment through a reverse osmosis (RO) process; disposal in sewage lagoons located near Cody, Wyoming; and, purchase of an RO unit that could be used in the future if the sump continues to collect

water. A fourth option was also suggested, land application. Mary Beth also indicated that the Shaw Group, who is considered responsible at this point, could also be left to make the decision on how disposal of repository sump water is done.

Questions

Don Bachman (DB) asked if waste is isolated from water collecting in the sump. FE showed a cross-section through the sump that showed there is a sand layer between the base of the waste and the highest level that water can reach under current conditions.

DB asked John Koerth (JK) what the state would require for an MPDES permit. JK said that because the Consent Decree is treating this project under CERCLA, no permits are needed. The state only advises the Forest Service on what is needed to comply with applicable rules and regulations for actions undertaken by the Forest Service at the site.

DB stated that from Greater Yellowstone Coalition's perspective, cost is an issue if there is no threat to the environment. He said if the water is relatively benign, circumstances say it should be disposed in the most cost effective manner. Discrete treatment for this type of water is beyond what the environmental community expects.

JK stated that the City of Cody option may be the most expeditious.

BK stated that the Forest Service may want to look at existing data to determine the agronomic aspects of the till and see if land application was feasible, and that this might be the most cost effective option since the water can be handled on-site.

JK stated that if land application were considered, uptake of contaminants by vegetation and the soils ability to attenuate contaminants would have to be shown.

DB stated that perhaps some dumps should not be disposed in the repository because of potential water quality problems in the sump. .

Jim Barrett (JB) asked if there was a sense of urgency to disposing of the water when access to the sump is feasible. BK said that plowing snow might be more of an issue from a sediment generation aspect than the existing conditions at the sump. Most agreed that there was no sense of urgency, but that the sump should be emptied this summer.

DB stated that perhaps a rain gage should be installed at the repository so that we can directly measure precipitation that falls at the site.

JB asked if we were running into delays for the McLaren project because of the work that needs to be completed at the repository. BK and FE said no, that the two projects were separate and on different parts of the mountain. FE stated that the contractor selected for the McLaren project has the resources to construct several large projects concurrently.

End of Questions

The final topic for discussion at the meeting was communication. Mary Beth Marks said she would like to develop a formal communication plan for instances like the repository sump, especially so that Cooke City residents could be notified in a timely manner. Mike Whittington (MW) said that he would be glad to help with communication if he knows about any situations that arise. He said the snowmaking took everyone by surprise. MW said the newsletter is a great way to communicate with the Cooke City folks, and encouraged the Forest Service to continue to use the newsletter for weekly project updates as they did last year, especially for road closures. Frank Ehernberger did a good job last year and they appreciate it. MW also said that fact sheets are good if something like the repository sump situation happens again. Word gets around quick.

DB stated that the website is helpful. He suggested that having more of a scientist to help FE put out more information might help. He said that it would be worth putting another person on the project to help with communication. MB said the Forest Service is hiring a communication person that will work on the project this year. MB asked if local people were using the website. DB said that now that it is a local call, more people can use the Internet.

JB stated that the Forest Service should identify three people that are year-round residents that can spread the word.

MW emphasized that the Forest Service needs to let people know what is going on, otherwise rumors spread.

DB stated that there is interest in the project beyond Cooke City. He said he checks the website weekly.

JB stated that, at a minimum, the Forest Service can contact himself, Don Bachman, and Mike Whittington.

Mike Whittington (MW) stated that for the Draft 2002 Work Plan, one area that could be improved is a description of how activities will be done this summer. There should be more about management of public roads, extent of travel disruptions, how traffic will be managed, how it will be noticed to people, and whether the Lake Abundance road will be accessible during the McLaren Pit work. MB replied that this would be a topic at the public meeting.

MW also stated that the rehabilitation work done last year should be signed so that people know not to drive through reclaimed areas. The signs should discourage disturbance and explain why it is important to leave the areas alone. He said inexpensive signing could mix interpretation with the cautions, and that Daisy Pass would be a good area for a sign explaining the McLaren Pit work. MB replied that this is already in the works.

FE stated that with regards to traffic control, there would be something published in the paper as soon as the contractor submits a traffic control plan.

Meeting Adjournment

AGENDA
SUMP WATER MEETING

New World Mining District Response and Restoration Project

June 4, 2002 10am

First Security Bank Building

- 10am - Repository Cover Design
 - Status of Construction of Repository Cover
 - Remaining Work on Cover
 - Status of the IT Corp.
- 11am - Sump Water
 - Snow Melt Process
 - Status of Sump Water (memo)
 - Discussion of removal of Sump Water